

HTG Mask Aligner Operating Procedures

NOTE: Reading this does not make you a qualified use of the machine. To become a user, contact the master.

- I. Basic operation when the lamp is already on:
 1. Utilities on (air, N₂, vacuum).
Panel power on.
Microscope bulb on.
N₂ switch on, check flow level.
 2. If necessary, push CYCLE to reach load/unload position.
 3. Push MASK to lift mask holder. Place mask in holder.
 4. Mask vacuum on. (Vacuum should be above 25 in. of Hg.)
 5. Place sample on chuck. Substrate hold on, check vacuum.
 6. Make sure chuck is low enough that the mask will not hit sample when lowered. (Two turns should be sufficient, but don't lower it all the way as this can screw up the chuck motion.) If everyone remembers step 13 there should always be enough clearance.
 7. Push MASK to lower mask, check vacuum.
 8. Raise chuck until sample is nearly in contact with mask.
 9. Push CYCLE to reach microscope position. Remember to gently help microscope into position.
 10. Align your pattern and bring sample into contact while pushing button to float chuck. Use the top knob, which will slip if you go past contact. Don't turn micrometers to the end of their ranges.
 11. Don your protective goggles.
 12. Set timer for desired exposure. Push CYCLE to expose.
 13. Lower chuck two turns.
 14. Remove mask and sample.
 15. Shutdown condition:
Microscope bulb off.
Timer reset to zero.
Panel power off.
Utilities off.
Leave UV lamp on.

- II. Turning lamp on:
 1. Turn on power supply, wait 10 minutes.
 2. Push START switch for about 1 second, then release.
 3. Power meter should read 450W.

- III. Turning lamp off:
 1. Turn off power supply for 1 second, then turn it back on.
 2. Leave power supply on for 15 minutes to cool lamp.

- IV. Common problems and solutions:
 1. Microscope doesn't stay in correct position. – Push SKIP, CYCLE, SKIP, and CYCLE to try again.
 2. Vacuum below 25 in. of Hg when mask holder is lowered. – Raise mask holder and check plastic rings on supporting posts.
 3. Chuck motion not smooth or vibration a problem. – Notify master.